QUALITY MANAGEMENT AND RELIABILITY

S.C. Sharma

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QUALITY MANAGEMENT AND RELIABILITY

(*Including Statistical Quality Control and ISO-Series*)

By
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Preface to the Third Edition

Since, Indian Economy is now entering into an era of globalisation, it is felt that only those organisations which are quality conscious and cost competitive can survive. Further, the customer is also quality conscious and demands quality in product and services. In view of this, industries need to continuously upgrade their quality.

In view of the above, the book have been revised and emphasis have been given on topics related to customer satisfaction, Total Quality Management and its Tools, Quality Measurement, ISO-9000 : 2008 (revised version of ISO-9000 : 1994), Companywide Quality Assessment. A few other modifications have been carried out in various chapters especially with reference to management commitment, involvement of all the people, continuous improvement and various techniques broughout by various quality *gurus*.

Due to changes made in the syllabuses of different universities, the title of the book have been changed from "Inspection, Quality Control and Reliability" to "Quality Management and Reliability". The book covers the syllabuses on Inspection, Quality Assurance, Quality Control, Quality Management, Total Quality Control, Total Quality Management, Statistical Quality Control, Statistical Process Control and Reliability Engineering.

I am confident that this revised edition will meet latest requirements of the readers.

Any suggestions and comments for further improvement of the book will be thankfully acknowledged.

—S.C. Sharma

Preface to the First Edition

With the rapid advancement in technology and awareness, the users have become highly quality conscious and demanding. This calls for the products, equipments, and services with high degree of quality, reliability and safety.

The concept of end product inspection has shifted to the philosophy of quality assurance. The belief that quality and elements of reliability and safety has to be built in right from its design stage and enforcement of the stringent quality assurance measures during manufacture has brought in drastic changes in the approach towards quality assurance. Today the quality assurance is based on quality audit checks and surveillance of the manufacturer's processing environment and quality systems rather than testing and inspection of finished products. In order to improve the reliability of the system, it is important to stipulate reliability requirements of components and sub-systems.

In an era of highly intense global competition, countries apply quality methodologies in the form of strategic quality management, quality systems, quality assurance and quality control, in order to gain or sustain a competitive edge. A comprehensive and effective quality assurance plan is structured to cover quality of input materials and components during manufacture, assembly, packaging and transporting before passing the product or equipment into the hands of the user.

ISO-9000 series of quality system has generated much awareness worldwide of the need for proper quality planning and management. There is a need for formulation of a comprehensive quality management system for assessement of vendors incorporating elements of both quality system attributes of ISO-9000 and product capability of manufacturer to produce goods meeting the quality requirements.

Marketing Research must discover the quality needs of the users' Product Development must create designs to take care of these needs; Operating planning must devise processes capable to execute the product designs, and these processes must be able to achieve desired quality. Purchasing must be for obtaining material of right quality ; Inspection and testing must prove this right quality ; Customer Service must observe the usage, remedy failures, and report so as to provide an opportunity for improvement. Administrative and support activities must be able to meet the needs of their customers, both internal and external. The whole idea is to winning confidence of the users regarding the quality.

Product and service quality requires managerial, technological, and statistical concepts throughout all the major functions of an organisation. The concepts like strategic management, competitive benchmarking, self managing teams, getting it right first time, zero defects, employee empowerment are also gaining importance as a move towards Total Quality Management (T.Q.M.).

Today's time is for the Total Quality Management. Managers are struggling with total quality now to ensure a future for themselves and their companies. The managers need to create a corporate culture where quality products and services, business processes and people (customers : external or internal) are central.

Research and techniques of American quality pioneers Deming and Juran, with Ishikawa, Corsby, Conway and many others have given the TQM message to empower today's managers. The benefits of TQM programmes include greater competitive advantage and massive finanical savings in the form of 'Cost of Quality', which is exhibited in the costs of prevention, appraisal, internal failure, external failure, and lost opportunities. Total Quality Management concept although initially adopted in the manufacturing sector, but has also been found effective in the service industry. TQM programmes increase customer satisfaction, thereby resulting a goodwill and additional business. By empowering people, these TQM programmes improve company morale and encourage genuine involvement in decision making.

Quality awareness and economic threat, especially from Japan has already made many other European and American companies aware of the need to improve the quality and reliability of their products and services, to optimize their processes, increase their productivity and minimise their costs. Indian companies are also required to take advantage of these quality concepts to take economic advantage and to improve quality image. Quality System needs to be continually updated and evolved in consonance with the technological advancements and developments in the industrial scene.

Efforts have been made to incorporate all the above mentioned concepts in this book for the help of students and professionals. This subject of 'Quality' is gaining importance, and have been introduced with various names, such as Quality Control, Inspection, Statistical Quality Control, Quality Management, Quality Assurance, Total Quality Management. etc.

I am thankful to M/s. Khanna Publishers in bringing out this book in a very short period.

—Author

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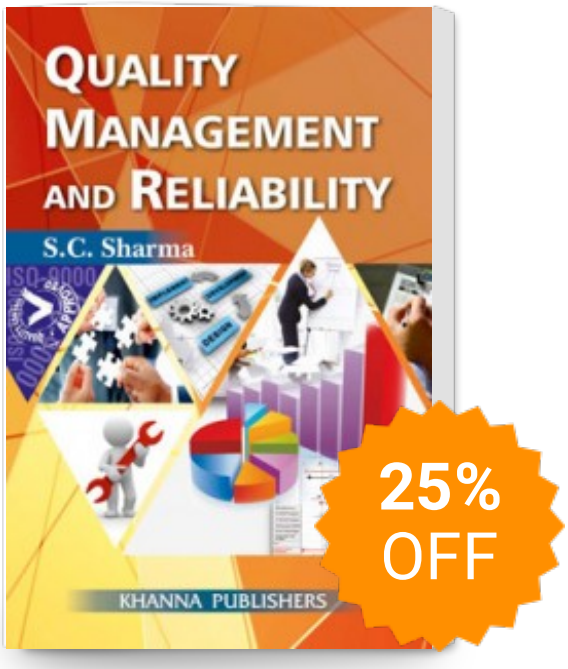

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